

By



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/069,989	03/01/2002	Josef Bauer	1454.1218	5647

21171 7590 09/12/2005

STAAS & HALSEY LLP
 SUITE 700
 1201 NEW YORK AVENUE, N.W.
 WASHINGTON, DC 20005

EXAMINER

NG, EUNICE

ART UNIT	PAPER NUMBER
----------	--------------

2654

DATE MAILED: 09/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/069,989	BAUER ET AL.	
	Examiner	Art Unit	
	Eunice Ng	2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 14-54 is/are pending in the application.
- 4a) Of the above claim(s) 1-13 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 14-54 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 March 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>01 March 2002</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Drawings

1. The drawings are objected to because the unlabeled rectangular boxes shown in the drawings should be provided with descriptive text labels. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. **Claims 14-33 and 45-54** are rejected under 35 U.S.C. 103(a) as being unpatentable over Rühl (US Patent No. 6,108,631) in view of Meador, III et al. (US Patent No. 5,638,425), and further in view of Nguyen et al. (US Patent No. 5,995,928).

Regarding claims 14, 24, and 45, Rühl teaches a method, device (see col. 1, lines 11-17, describing a navigation system in a car), and an electronically readable

Art Unit: 2654

data medium storing at least one computer program to control a processor to perform the method (see col. 2, lines 62-67 and col. 3, lines 35-38) for a speech recognition system, comprising, and providing means for:

detecting acoustic word speech signals from a user (see Abstract and lines 36-39 of col. 5);

carrying out a speech recognition operation using a first vocabulary (see lines 36-39 and 42-46 of col. 6);

detecting and evaluating letter signals as input by the user (see col. 8, lines 16-19);

carrying out a word recognition operation, after said detecting and evaluating of respective letter signals representing a single letter, using a second vocabulary larger than the first vocabulary (col. 6, lines 22-28 describe a larger and a smaller vocabulary-- speech recognition (recognizing the entire word) is done with the smaller vocabulary as in col. 6, lines 36-39 and word recognition (recognizing by spelling the letters) is done using the larger vocabulary as in col. 8, lines 15-43 and col. 10, lines 20-28); and

assessing the probability of correct word recognition (see col. 8, lines 23-24);

But Rühl fails to teach assessing probability of correct speech recognition and prompting spelling for which the probability of correct speech recognition does not reach the desired probability. However, these features are well known in the art as evidenced by Meador, III et al., which disclose "assessing probability of correct speech recognition" (see col. 3, lines 17-22) and "prompting the user to spell out each word for which the probability of correct speech recognition does not reach a first desired probability" (see col. 4, lines 21-25).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Rühl to include a probability criterion of Meador, III et al.. Motivation for the combination would be to speed up the recognition process by automatic detection of whether or not the user should spell out the word instead of having the user intervene and request for

Art Unit: 2654

spelling recognition (as done in Rühl, col. 8, lines 13-19), and also makes the system more user-friendly.

Both Rühl and Meador, III et al. fail to teach, "terminating spelling and outputting a word obtained with a second desired probability." However, this procedure is well known in the art as evidenced by Nguyen et al. in col. 6, lines 41-50.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Rühl and Meador, III et al. to include the early identification feature of Nguyen et al.. Motivation for the combination would be to speed up the recognition process and save unnecessary spelling of words from the user and unnecessary processing of words by the system.

Regarding claims 18, 28, and 49, Rühl, Meador, III, and Nguyen et al. teach all the limitations as specified in the rejection of claim 14 except Rühl fails to teach "carrying out speech recognition of the word speech signals using the letter signals as detected and evaluated...second desired probability." However, this feature would have been obvious given the invention of Meador, III et al., which disclose a similar notion with an alphabet recognition process as described col. 9, lines 29-38.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Rühl and Nguyen et al. with that of Meador, III et al.. Motivation for the combination would be to provide a further recognition alternative to narrow down the results if a word is not yet identified in the previous steps.

Regarding claim 19, 29 and 50, Rühl, Meador, III, and Nguyen et al. teach all the limitations as specified in the rejection of claim 14 except Rühl fails to teach "carrying out a word recognition operation...based on a combined recognition probability using the letter recognition probability and the speech recognition probability." However, this feature is well known in the art as evidenced by Meador, III et al. which disclose combining word recognition and phoneme recognition (synonymous with what is referred to as "speech recognition" and "letter recognition," respectively, in the current invention). See Fig. 4, elements 66, 68, 70-72 and col. 11, section A.4.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the recognition probabilities to carry out recognition as disclosed by Meador, III et al.. Motivation for the combination would be that testing against an additional recognition and probability criterion may lead to more effective and accurate results, and help narrow down the word more quickly.

Regarding claims 15, 25, and 46, Rühl teach wherein the word recognition includes:

assigning a letter recognition probability based on the letter speech signals (see col. 8, lines 23-24); and implicitly teaches

determining a word list of all words in the second vocabulary having a letter recognition probability not lower than a highest determined letter recognition probability for any word, minus a first threshold value (see col.8, line 23-28, which describes making a "preselection" from a list of words from recognition probabilities, a wordlist as illustrated in col. 8, line 45).

Rühl does not explicitly teach a "threshold value." However, this feature is well known in the art as evidenced by Meador, III et al., which teaches having the probability level checked against a threshold to determine sufficient recognition results (see col. 4, lines 12-17).

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Rühl with that of Meador, III et al. to specify a threshold value. Motivation for the inclusion would be so the recognition results would be limited to only the results with sufficient recognition probabilities.

Regarding claim 16, 26, and 47, Rühl does not, but Meador, III et al. teach wherein (see Fig. 2 for the architecture of the system which implements the method):

said assessing the probability of correct word recognition comprises determining whether the word list contains only a single word (see col. 9, lines 15-16); and

wherein said terminating spelling and outputting the word is performed if only a single word is contained in the word list (see col. 9, lines 13-24, describing

Art Unit: 2654

situations for "more than one match," "one match," and "no match," with separate scenarios for each).

It would have been obvious to one of ordinary skill at the time the invention was made to include the teaching elements of Meador, III et al. with those of Rühl and Nguyen et al.. Motivation for continuing recognition until a single word is recognized would be so the user is always presented with the "best" recognition and will not have to choose from a list.

Regarding claim 17, 27, and 48, Rühl does not, but Meador, III et al. teach further, "carrying out speech recognition of the word speech signals using the word list with each word assigned a speech recognition probability" (see col. 10, lines 43-52);

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Rühl with that of Meador, III et al. to use the word lists to carry out speech recognition of the word signals, since the word list contains all the candidate words with corresponding probability data which are easily accessible.

But Rühl and Meador, III et al. fail to teach, "determining whether a highest speech recognition probability and a second highest speech recognition probability differ from one another by a predetermined threshold value" and "wherein if the predetermined threshold value...the highest speech recognition probability." However, these procedures are well known in the art as evidenced by Nguyen et al. in column 6, lines 41-53.

Therefore, it would have been obvious for one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Rühl and Meador, III et al. with that of Nguyen et al. to include a predetermined threshold value. Motivation for the inclusion of this threshold value would be in the case when there are multiple recognition results available, it would be more user-friendly to have the users spell out only the top choices.

Regarding claims 20, 30, and 51, Rühl does not, but Meador, III et al. teach further, "generating a word list based on the combined recognition probability" (see col. 11, section A.4).

It would have been obvious to one of ordinary skill at the time the invention was made to include the teaching elements of Meador, III et al. with those of Rühl and Nguyen et al.. Motivation for generating a word list based on the combined recognition probability would be so the system can save and use this word list for further recognition processing if necessary, or the user may choose based on this word list.

Regarding claim 21, 31 and 52, Rühl does not, but Meador, III et al. teach wherein said terminating, and terminating means for, spelling and outputting the word is based solely on a single interrogation as to whether the combined recognition probability is the second desired recognition probability (see col. 8, lines 28-29, wherein the probability level is questioned as to whether it meets a probability criteria).

But the method disclosed by Meador, III et al. also checks to see whether there is only a single match found before outputting the word (see col. 6, lines 13-19), so Meador, III et al. does not explicitly teach the terminating spelling and outputting based "solely on a single interrogation."

However, Rühl and Meador, III et al. do not teach, but terminating and outputting based on a single interrogation is disclosed in Nguyen et al. in col. 13, lines 13-17 and Fig. 2, element 250. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching elements of Rühl and Meador, III et al. with that of Nguyen et al.. Motivation for the combination would be to allow the user to choose from multiple results instead of processing until a single result is available, which in some cases may be more efficient and effective.

Regarding claims 22, 32, and 53, Rühl does not, but Meador, III et al. teach wherein said terminating spelling and outputting the word includes:

outputting an appropriate message to the user (see col. 3, lines 57-59, which disclose a "candidate word" sent to the user or "corresponding information to be sent to the user," reading on an appropriate message to the user); and

terminating said detecting of the acoustic word speech signals (see Figs. 4, 6, and 7, elements 95, 120, and 138, wherein the last step of the recognition process is

outputting the result, without continued detecting; or an alternative last step to discontinue service or transfer to an operator as in Figs. 6 and 7, elements 122, 134 and 144, also terminating detecting).

It would have been obvious to one of ordinary skill in the art to modify the teaching elements of Rühl with those of Meador, III et al.. Outputting a message would make the system more user-friendly to notify the user of the status of the recognition process. Also, terminating detecting after outputting the word would be so speech recognition would not be done on continued speech by the user when recognition is no longer requested.

Regarding claim 23, 33, and 54, primary reference Rühl implicitly teach, after said detecting and evaluating of the letter speech signals respectively representing a letter:

determining whether the user is continuing to speak (see col. 7, lines 37-41 and col. 8, lines 16-19, which describe the user providing spelling of a location name followed by a processing of the spelling provided; therefore, the invention suggests detecting whether or not the user is continuing to speak or has stopped);

continuing said detecting and evaluating and the word recognition operation for next speech signals respectively representing a letter, if the user continues to speak (see col. 8, lines 22-24); and

outputting one of the word list and a predetermined number of the words with highest probabilities in the word list, if the user does not continue to speak (see col. 7, lines 37-41 and col. 8, lines 16-30, which describe the user providing spelling followed by processing; therefore, the invention suggests detecting whether the user has stopped speaking, in which the system follows by outputting a list of recognition results with highest probabilities as in col. 8, line 44).

4. Claims 34-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Alonso-Cedo (US Patent No. 5,752,230) in view of Adler et al. (US Patent No. 6,249,765 B1).

Regarding claims 34 and 38-39, Alonso-Cedo teaches a communication device for detecting and evaluating word speech signals representing a word from a user of a

Art Unit: 2654

speech recognition system (see Abstract and column 1, line 14, describing a telephone system, which is a communication device) comprising:

a data bus (see Fig. 1, element 114);

at least one memory device, coupled to said data bus, to store at least one vocabulary and at least one program (see column 3, lines 1-3, describing a memory device which can store data (or vocabulary) and a hard disk which can store programs; see also Fig. 1, elements 104 and 106);

a speech recognition processor, coupled to said data bus, to detect acoustic word speech signals from a user and to carry out a speech recognition operation using a first vocabulary (see col. 3, lines 24-29 and Fig. 1, element 102; also col. 4, lines 55-60 and Fig. 2, elements 204, 210, 212, wherein the name directory controller is synonymous to a first vocabulary); and

a speech output device, coupled to said data bus, to produce audio signals simulating speech (see Fig. 1, element 121 and col. 3, lines 15-18);

But Alonso-Cedo fails to teach "a central processor, coupled to said data bus," to perform the necessary methods of the present invention. However, this feature is well known in the art as evidenced by Adler et al., which describe a network provided "in the form of a bi-directional communications link (synonymous to a data bus), to which a central processing unit and memory are attached," adapted to perform most of the invention's processing, the memory which may be used to store speech recognition models and other data used by the system (see col. 7, lines 6-17 and Fig. 2, elements 210, 212, 214).

Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to modify the teaching elements of Alonso-Cedo with that of Adler et al. to include a central processor for implementing the method of the present invention. Motivation for the inclusion would be to simplify the architecture of the system, having one unit that can handle all the processing involved.

Regarding claims 35-37, and 40-43, Alonso-Cedo does not, but Adler et al. teach wherein said central processor also:

assigns a letter recognition probability based...minus a first threshold value;

assesses the probability of correct word recognition by...if only a single word is contained in the word list;

carries out speech recognition of the word speech signals using the word list...with the highest speech recognition probability;

generates a word list based on the combined recognition probability;

terminates spelling and causes output of the word based solely on a single interrogation...the second desired recognition probability;

wherein upon terminating spelling and outputting...detection of the acoustic word speech signals; and

wherein, after detection and evaluation of the letter speech signals respectively representing a letter...words with highest probabilities in the word list;

As specified in the rejection of claims 34 and 38-39, the central processing unit is able to perform most of the invention's processing and is attached to a memory which stores data for processing, which may include in this case, recognition probabilities, speech signals, word lists, and threshold values.

Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to have the central processor be able to implement every processing method of the present invention, modifying the invention by Alonso-Cedo given the invention by Adler et al.. Motivation for the inclusion would be to simplify the architecture of the system, having one unit that can handle all the methods involved.

5. **Claim 44** is rejected under 35 U.S.C. 103(a) as being unpatentable over Alonso-Cedo and Adler et al. as applied to claim 43 above, and further in view of Byram et al. (US Patent No. 3,928,724).

Regarding claim 44, Alonso-Cedo teaches wherein said communication device is connectable to telephone lines (see Figs. 1 and 2, elements 116 and 118-119).

But both Alonso-Cedo and Adler et al. fail to teach, "further comprising a switching unit coupled to the telephone lines and said data bus." However, switching units are well known in the telecommunications art as evidenced by Byram et al. in

Fig. 2, elements 12 (telephone), 14 (telephone switching system), 28 and 30 (data buses).

Therefore, it would have been obvious to one of ordinary skill at the time the invention was made to modify the teaching elements of Alonso-Cedo and Adler et al. to include a switching unit. Motivation for the combination would be so that the system can easily handle a wide range of particular tasks and services, and receive end user calls and transfer call details to the correct unit.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This is in reference to US Patent No. 6,725,197 B1 to Wuppermann et al. which disclose a method of automatic recognition of at least a partly spelled speech utterance; US Patent No. 6,321,196 B1 to Franceschi, which disclose phonetic spelling for speech recognition wherein the speaker may indicate a desire to stop phonetic spelling; US Patent No. 6,208,965 B1 to Brown et al., which disclose a method and apparatus for performing a name acquisition based on speech recognition that utilizes spelling and probability thresholds; and the paper by Marx et al. titled "Reliable spelling despite poor spoken letter recognition," which disclose a discrete-letter spelling for more reliable recognition systems and outputting wordlists.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eunice Ng whose telephone number is 571-272-2854. The examiner can normally be reached on Monday through Friday, 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on 571-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

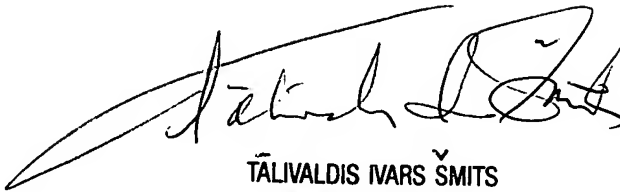
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Art Unit: 2654

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Eunice Ng
AU 2654

29 Aug 2005



TĀLIVALDIS MĀRS ŠMITS
PRIMARY EXAMINER